INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1998	**Park:** Shenandoah NP
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Permit#:
SHEN1998N-232

Park-assigned Study Id. #:
unknown

Project Title:
Standardized Monitoring Methods For Amphibians In National Parks And Associations In Time And And Space Between Amphibian Abundance And Environmental Stressors

Permit Start Date: Jan 01, 1998	**Permit Expiration Date** Jan 01, 1999
Study Start Date: Jan 01, 1998	**Study End Date** Jan 01, 2000

Study Status:
Completed

Activity Type:
Monitoring

Subject/Discipline:
Herpetology (Amphibians / Reptiles)

Objectives:
Develop protocols for long-term monitoring of amphibian populations in relation to environmental factors at Shenandoah National Park. Document amphibian (egg, larva, adult) distribution and abundance using various survey methods (area- and time-constrained searches, coverboards, leaf litter bags, 1 m2 quadrats, transects, electroshocking, chorus surveys). Amphibians are measured in the field and any deformities or diseases are documented. Population size estimates are assessed using mark-recapture and removal techniques. Amphibian distribution and abundance are analyzed in relation to water quality and habitat variables (e.g., soil moisture and pH, streambank composition). Contaminant levels in redback salamanders will be assessed along an elevational gradient.

Findings and Status:
Distribution and abundance of 13 amphibian species was documented in the park from April to October 1998. Museum specimens of 10 individuals representing 3 species were collected and accessioned at the National Museum of Natural HIstory in Washington, D.C.;Terrestrial Salamanders: Thirty plots ranging in size from 15 m2 to 35 m2 were established in five areas of the park (6 plots per site). All natural cover objects in the plots were overturned to check for salamanders. Checks were conducted on a weekly basis during the day in the spring and fall. Mark-recapture population estimates were assessed by marking salamanders with visible implant fluorescent elastomer (VIE). Soil moisture, pH, and temperature, vegetation parameters, and weather data were recorded.;Streamside Amphibians: During the summer, streamside amphibians were surveyed using four methods (1 m2 quadrats, 50 x 1 m transects, leaf litter bags, electroshocking) at each of nine streams (2 transects each) throughout the park. Water quality, depth, and flow and streamside characteristics (bank type, cover) were recorded.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
Yes

Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**

180000	0
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0